L-3 Communications, CS-W
Special Temporary Authorization
File No.: ???-EX-ST-2015

Application Background:

The purpose of this project is to flight test and experiment with point to point data links for application to mobile communications hotspots for military applications.

Concept of Operations:

There will be 4 stations operating up to 2 different simultaneous links. Three of these stations are ground based and one will be airborne on a Cessna 172. The two links are referred to as the Discovery Link and LTE Link. Figure 1 illustrates the concept of operations where the green arrow is the Discovery Link and the blue arrow is the LTE Link. The 4 stations are defined below:

1. Station#1 will only operate a discovery link and is ground based.
2. Station#2 will operate both a discovery link and an LTE link simultaneously and is ground based.
3. Station#3 will operate both a discovery link and an LTE link simultaneously and is airborne on the Cessna 172. Maximum altitude is 11 kft or 3353 m AMSL.
4. Station#4 will only operate an LTE link and is ground based. Station#4 are commercial off the shelf user equipment radios Samsung Galaxy S4 handsets and Samsung Galaxy tablets. Up to 5 radios will be operated in the vicinity of Station#2 and Station#4.

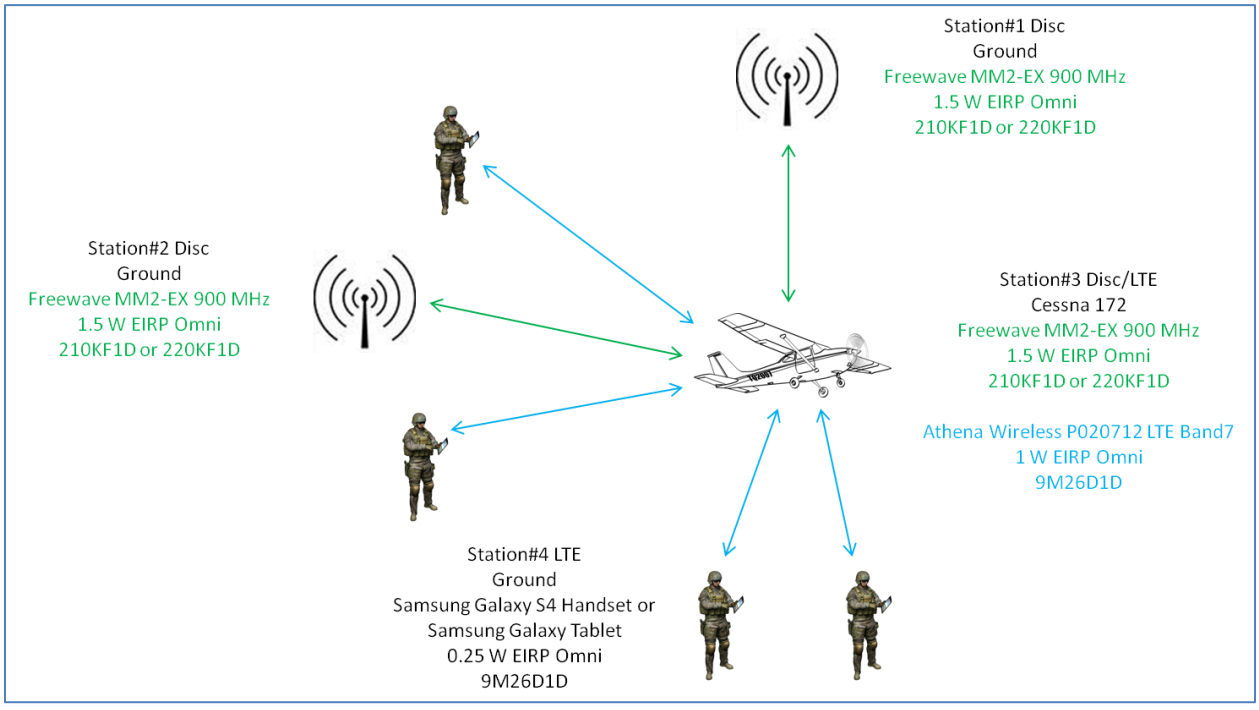

Figure 1 Concept of Operations

Spectrum Requirements:

The discovery link will operate in the unlicensed 900 MHz ISM band (902.2464-927.8208 MHz). The radio is a commercial off the shelf product (MM2-EX family) made by Freewave Inc. The radio uses a spread spectrum frequency hopping waveform. NTIA dd1494 forms are attached. The radio is connected to an omni antenna.

The LTE link will operate in the LTE Band 7 frequency range. Uplink is defined as from the user equipment to the base station (2500-2570 MHz) and the Downlink is defined as from the base station to the user equipment (2620-2690 MHz). The base station is a commercial off the shelf base station radio P020712 made by Athena Wireless. NTIA dd1494 forms are attached. The radio is connected to an omni antenna.

Location of Testing:

The locations of the ground stations and the aircraft transmission boundary are shown in Figure 2. The largest red circle is the area of operation for Station#3 aircraft (40° 2'29.92"N, 111°52'33.13"W; 30 km radius). The smaller red circle is the area of operation for Station#4 LTE user equipment radio's (40° 5'53.25"N, 111°43'51.19"W; 5 km radius). There will be up to 5 radios in fixed locations within the area of operation. Station#4 radio's may also be used within 1 km of Station#2. Station#1 (40°28'4.19"N, 111°49'21.50"W) and station#2 (40°16'32.30"N, 111°52'1.90"W) are fixed locations.

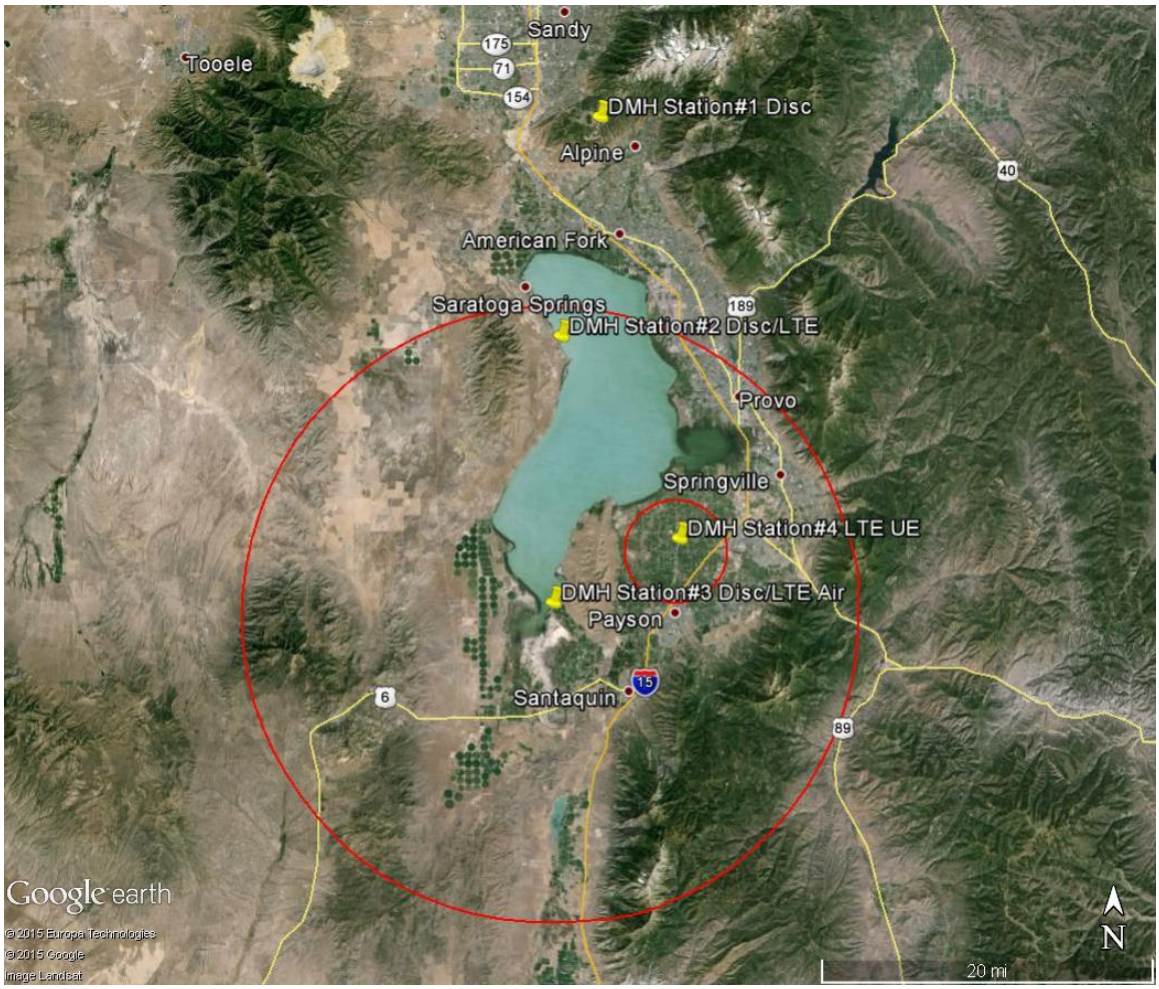

Figure 2 Location of Testing